

## **ABSTRACT**

The disclosure involves a process for preparing butadiene from n-butane. In the process, n-butane is first dehydrogenated autothermally under nonoxidative conditions to form a gas stream. The gas stream is then oxidatively dehydrogenated to form a second gas stream. From the second gas stream, a third gas stream containing n-butane, 2-butene and butadiene is obtained. From the third gas stream, a butadiene/butane product stream is obtained and remaining n-butane and 2-butene is recycled into the first dehydrogenation zone.